pico ADC-200

High speed Analog to Digital Converter

User Manual

Version 1.0 rev 2

by

A D Tong

Pico Technology Limited
149-151 St Neots Road
Hardwick
Cambs CB3 7QJ
GB
Tel: 44-1954-211716
Fax: 44-1954-211880
E-Mail: sales@picotech.co.uk

Copyright 1996 Pico Technology Limited

Contents

1 Introduction 1

2 Safety Warning 1

3 EMC 2

4 Specification 2

5 Installation 4
Package contents 4
Software 4
Hardware 4

1 Introduction

The PICO ADC-200 is a high speed analog to digital converter with two input channels and software controlled input ranges. It can be used as a virtual instrument with the supplied PicoScope software: alternatively, you can use the ADC-200 driver software to develop your own programs to collect and analyse data from the unit.

This manual describes the physical and electrical properties of the ADC-200. Other information can be found in the following locations:

PicoScope for DOS :	Refer to PicoScope manual
PicoScope for Windows :	Windows help
Windows software drivers :	Windows help file
Dos software drivers :	DRIVERS.TXT file

The software disk also contains a 'README' file which contains any information that was not available when this manual was printed.

2 Safety Warning

For all Pico ADCs, the ground input (BNC outer shell) is connected directly to the ground of your computer. This is done in order to minimise interference. As with most oscilloscopes, you should take care not to connect the ground input of the ADC to anything which may be at some voltage other than ground; doing so may cause damage to the ADC. If in doubt, connect a channel input to the doubtful ground point and check that there is no significant AC or DC voltage.

As some computers do not have an earth connection (for example laptops), it must be assumed that the ADC-200 is not protected by an earth. For this reason we recommend that only Class II (double insulated) oscilloscope probes should be used.

The maximum input voltage of the ADC-200 is ±20V. Any voltages in excess of ±100V may cause permanent damage to the unit.

The unit contains no user servicable parts, repair or calibration of the unit requires specialised test equipment and must be performed by Pico Technology Limited or their authorised distributors.

3 EMC

This instrument has been designed to meet the requirements of the EMC Directive 89/336/EEC. Compliance was demonstrated by meeting the test limits of the following standards :

Emissions

EN50081-1 (1992) Generic emmission standard for residential, commercial and light industry. Test methods and limits used were:

a) EN55022 Conducted, Class B.
b) EN55022 Radiated, ClassB.

Immunity

EN50082-1 (1992) Generic immunity standard for residential, commercial and light industrial. Test methods and limits used were:

a) EN60801-2 (1993) Electrostatic Discharge.
b) IEC801-3 (1984) RF Field.
c) IEC801-4 (1988) Fast Transient.

4 Specification

Parameter	ADC200-20	ADC200-50
Maximum sampling rate	20Msps (2 channels)	25 Msps (2 channels) 50Msps (1 channel)
Buffer size	2x8k samples	2x8k samples 1x16k samples
Resolution	8 bits	
Analog Connections	2 channels 1MS input impedance BNC connector AC/DC coupling via switch	
Digital connections	1 channel: ext trigger/signal generator >100kS input impedance BNC connector	
Voltage ranges	±20V, ±10V, ±5V, ±2V, ±1V, ±500mV, ±200mV, ±100mV, ±50mV	
Accuracy	Voltage ±3% Time ±100ppm	
Trigger modes	Event: None/Rising/Falling Source: chA/chB/Ext(digital) Timing: pre/post/1% increments between	
Output	D25 to PC printer port	
Power supply	300mA @ 12V	500mA @ 12V
	1.6mm DC connector (+ in centre)	
Case	Grey ABS 140x190x45mm not waterproof	

5 Installation

5.1 Package contents

The ADC-200 package should contain the following items:

- ADC-200 unit
- 25 way parallel cable
- Power supply
- Software diskette
- ADC-200 manual
- PicoScope for DOS manual

5.2 Software

To install the software under DOS:

- insert the diskette into drive A
- type `A:INSTALL` and press Enter

To install the software under Windows:

- insert the diskette into drive A
- select File from the program manager menu
- select Run from the File sub-menu
- type in `A:WINSTALL` and press Enter

The computer will ask you a number of questions, then copy the files that you have selected onto your hard disk.

The software will normally be installed in a directory called C:\PICO and the software drivers in the sub-directory called C:\PICO\DRIVERS

5.3 Hardware

To use the ADC-200, you should connect the D-connector on the ADC-200 to the printer port on your computer using the cable provided. Next, connect DC power by plugging the power adaptor into a mains socket and

plugging the DC power jack into the socket on the ADC-200. The red light should now be on, showing the unit is powered.

The ADC-200 has the same connectors as an oscilloscope, so you can use standard oscilloscope probes. The input impedance is also the same, so the x10 function on a scope probe works correctly.

There is a switch next to each BNC connector: with the switch down, the ADC-100 can measure DC voltages on the BNC next to it. With the switch up, it measures only AC voltages.

The BNC connector labled 'E' has two functions; in normal use it is the external trigger input and accepts a TTL compatible input signal. This connector can also be used as a simple (squarewave) generator. This signal generator can be used to compensate x10 scope probes.

To check that the unit is working, start up the PicoScope program. PicoScope should now display the voltage that you have connected. If you are using scope probes, when you touch the scope probe tip with your finger, you should see a small 50Hz mains signal on the screen.